

DETAILED ACTION

1. This office action is in response to amendment filed 6/12/2009.

Response to Remarks/Amendment

2. Applicant's amendment, filed 6/12/2009, has been fully considered and as a result claims 27-28, 30-31, are now indicated allowable. However, claim 29 as amended, is rejected because of lack of adequate support in the original specification. However, in order to advance prosecution in the case an examiner's amendment was considered necessary.
3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Mark D. Saralino on 8/25/2009 and 8/27/2009.

The application has been amended as follows:

IN THE CLAIMS:

Claim 29, has been cancelled by the applicant.

Reason for Allowance

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4. Applicant's remarks/amendment, see page 7, filed 06/12/2009, with respect to claims 27-31, have been fully considered and as a result claims 27-28, 30-31 allowed with claim 29 stand cancelled.

5. Claims 27-28, 30-31 allowed.

6. The following is an examiner's statement of reasons for allowance:

The prior art of record, either considered alone or in combination, neither teaches nor renders obvious a frequency control method (apparatus) comprising:

a recording medium, wherein a recording symbol is encoded by (1,7) RLL modulation system and a synchronization pattern includes 2T9T9T when a standard cycle of a symbol length of the recording symbol is defined as T;

performing a maximum likelihood decoding section for performing a maximum likelihood decoding on the multiple bit digital signal having the suppressed low noise component in accordance with a state transition rule along the (1,7) RLL modulation system and converting the multiple bit digital signal into a binary signal;

detecting a maximum pattern length detection section for detecting a maximum pattern length during a predetermined period from the binary signal converted by the maximum likelihood decoding section;

detecting a minimum pattern length detection section for detecting a minimum pattern length during the predetermined period from the multiple bit digital signal having the suppressed low noise component;

selecting the maximum pattern length or the minimum pattern length that is considered optimum as cycle information from the detected maximum pattern length and minimum

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pattern length based on a comparison result of the detected maximum pattern length and minimum pattern length;

determining a frequency error amount based on a difference between the maximum pattern length or the minimum pattern length detected when a cycle of the clock signal is the standard cycle T and the cycle information; and

adjusting the frequency of the clock signal based on the determined frequency error amount and outputting the adjusted clock signal. Such limitations as recited in the independent claims 27 and 28, is neither anticipated nor rendered obvious by the prior art of record.

The prior art of record, either considered alone or in combination, neither teaches nor renders obvious an information reproducing method (apparatus) for reproducing information from an information recording medium, comprising:

a recording medium, wherein a recording symbol is encoded by (1,7) RLL modulation system and a synchronization pattern includes $2T9T9T$ when a standard cycle of a symbol length of the recording symbol is defined as T ;

performing a maximum likelihood decoding section for performing a maximum likelihood decoding on the multiple bit digital signal having the suppressed low noise component in accordance with a state transition rule along the (1,7) RLL modulation system and converting the multiple bit digital signal into a binary signal;

detecting a maximum pattern length detection section for detecting a maximum pattern length during a predetermined period from the binary signal converted by the maximum likelihood decoding section;

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detecting a minimum pattern length detection section for detecting a minimum pattern length during the predetermined period from the multiple bit digital signal having the suppressed low noise component;

selecting the maximum pattern length or the minimum pattern length that is considered optimum as cycle information from the detected maximum pattern length and minimum pattern length based on a comparison result of the detected maximum pattern length and minimum pattern length;

determining a frequency error amount based on a difference between the maximum pattern length or the minimum pattern length detected when a cycle of the clock signal is the standard cycle T and the cycle information; and

adjusting the frequency of the clock signal based on the determined frequency error amount and outputting the adjusted clock signal; and

reproducing information from the information recording medium based on the adjusted clock signal. Such limitations as recited in the independent claims 30 and 31, is neither anticipated nor rendered obvious by the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qutbuddin Ghulamali whose telephone number is (571)-272-3014. The examiner can normally be reached on Monday-Friday, 7:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

QG.
August 27, 2009.

/Chieh M Fan/
Supervisory Patent Examiner, Art Unit 2611